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P/23-3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application: Madigan et al.

Serial No.: 09/113,254

Group Art Unit: 1638

Filed: July 10, 1998

Examiner: A. Grunberg

For: SEEDING TREATMENTS

DECLARATION OF MICHAEL KRYSIAK

**Assistant Commissioner for Patents
Washington, D.C. 20231**

I, Mike Krysiak, residing at 3554 Highland Center Drive, Green Bay, Wisconsin, 54311 declares as follows;

1. I graduated from the University of Wisconsin-Milwaukee majoring in Industrial Engineering.
2. I have given various presentations relating to seed encapsulation, green building, quality and service throughout the United States.
3. I worked for FEECO International, Inc. as Manager of Quality and Service for six years. FEECO designs, builds and installs material processing equipment for companies in the environmental and fertilizer markets. During my last two years at FEECO I worked on the development of the EncapSeed products in our Pilot Lab. Prior to FEECO, I worked at Krueger International (KI) as an Industrial/Quality Engineer.
4. I presently am the President and CEO of Encap. Encap is in the business of encapsulating seeds.
5. I am a named inventor of the 09/113,254 patent application. I have reviewed the Office Action dated May 10, 2000.
6. I have reviewed the Examiner's rejection regarding Gerber and have reviewed the Gerber Patent.
7. Gerber teaches a seed capsule having a number of seeds not more than 4 percent of the total weight of the capsule. Col. 5 lines 23-27.

8. Gerber describes a mixture of seeds and loess which are pressed together. They form a thistle ball. This differs from the encapsulated seed of the present invention because the thistle ball of Gerber includes multiple seeds, loess and the ball is not an integral part of the seed. Further, Gerber does not describe an agglomeration process.

9. I have reviewed the Examiner's rejection over Roth and have reviewed the Roth patent.

10. Roth describes coating crop seeds with an MAS carrier having one or more agricultural chemicals dispersed therein. The process of coating is described as dipping, soaking, spraying, or other conventional mode of application. Col. 4 lines 46-50. Crop seeds described are corn, sorghum and soy. Col. 4 lines 60-62. The coating is described as a thin continuous film. Col. 4 lines 3-5.

11. Roth differs from the encapsulated seed of the present invention because Roth only describes spraying sludge on seeds. The spray does not become an integral part of the seed. Nor does the spraying describe an agglomeration process.

12. I have reviewed the Examiner's rejection over Nilsson and have reviewed the Nilsson patent.

13. Nilsson describes the introduction of the seed or seeds into a cover. The cover may be made into halves or parts, at least one part or half of which comprises a suitable recess for the seed or seeds. After introducing the seed into the recess, the capsule parts are secured to each other. Col. 2 lines 11-25, Col. 3 lines 45-52.

14. Nilsson differs from the present invention because Nilsson does not describe a coating which is an integral part of the seed. Nilsson describes a shell of paper where the seed is placed within the shell. The shell has spaces which allow gas and liquid to penetrate. Further, Nilsson does not describe an agglomeration process.

15. I have reviewed the Examiners rejection over Loperfido and have reviewed the Loperfido patent.

16. Loperfido describes coated seeds having a coating comprising non-porous, hydrophobic, non-phytotoxic particles which are adhered to each other and to the seeds by a hydrophilic binder in such a manner that the coating is highly porous and provides facile gas and water exchange between the seed and its environment. Abstract of the Invention.

17. Due to the hydrophilic nature of the binder, it will be dissolved readily by soil moisture. Dissolution of the binder destroys the mechanical integrity of the coating. Col. 5 lines 4-6.

18. The coating allows the maximum amount of air space in the coated seed. Col. 4 lines 21-22 .

19. Loperfido differs from the encapsulated seed of the present invention because Loperfido does not teach a coating being an integral part of the seed. Loperfido teaches a binder added to the seed that does not uniformly coat the seed. The coating forms beads that then collect around the seed. The coating formed around the seed is of a highly porous nature. Loperfido describes allowing a maximum amount of air space between the coating and the seed.

20. None of the products described in the prior art patents have ever been made commercially.

21. The present invention provides a soil conditioner in intimate association with the seed. Specification Pg. 15 lines 32-33.

22. The present invention provides a uniformity of coating or coating thickness so that the seed is not on or immediately adjacent an outside surface of the capsule such that the seed may fall out, or be easily broken out, of the capsule, or easily removed by dissolution of materials at and near the surface of the seed capsule. Specification Pg. 17 line 31 – Pg. 18 line 3.

23. The present invention prepares a seed that becomes generally uniformly coated with one or more layers of the coating material such that the coating material becomes an integral part of the respective seed capsule. As the coating material solidifies on the seed, the coating material tightly bonds to the respective portions of the seeds. Specification Pg. 22 lines 14-22.

24. The present invention applies a seed in a seed capsule wherein the seed is intimately combined with a soil conditioning material in a common particle. Specification Pg. 35 lines 23-25. This was not taught prior to the present invention. After a review of the prior art provided by the Examiner, this statement is still true.

25. The prior art does not show the soil conditioning material nor the inorganic fertilizer intimately associated in a common capsule or other particle as in the present invention. Specification Pg. 38 lines 30-33.

26. Where the soil conditioning and fertilizer materials are applied separate from the seed, the potential cooperative benefit of the soil conditioning material as relates to solution and up-take of soil moisture and or of the inorganic chemical fertilizer by the seed are not obtained, and/or are not obtained in controlled close association with the seed. Specification Pg. 32 lines 1-10.

27. When applied separately to the soil, the seed and the soil conditioner are not necessarily in intimate contact with each other as they are when both materials are combined into a single combined seed capsule product as in the present invention. Specification Pg. 39 lines 19-23.

28. In the present invention, soil conditioning material and optionally chemical fertilizer, are inherently bound to each other, and to the seed, as by the agglomeration process, and inherently assist the seed in achieving desired germination and strong early growth. Specification Pg. 42 lines 27-31.

29. Figures 6A-6D of the present invention illustrate the seed in intimate association with the soil conditioning material.

30. The present invention comprises a combination seed capsule having a viable seed acting as a core or pseudo core. A coating of a composition comprising a soil conditioning material is an integral part of the seed. None of the prior art describes these elements. Further, where the coating is applied in an agglomeration operation is also not described in the prior art.

31. Enclosed is a sample of EncapSeed which was prepared according to the method described in the present invention. As shown by the enclosed EncapSeed, the coating is an integral part of the seed. The seed (an all-purpose grass seed mixture) comprises 32% of the overall product weight. The blanket that is wrapped around the seed is comprised of dicalcium phosphate (.8%) and dried, ground paper sludge (67.2%). The dried, ground paper fines range in size from approximately 30 mesh to approximately 200 mesh. Of this total material, 68.5% is comprised of inert material. The EncapSeed coating has no visible spaces between the coating and the seed is designed to act as the microenvironment for the seed for the germination process. Field tests by the University of Wisconsin-Madison's Horticultural Department have shown that the EncapSeed blanket helps to enhance turf establishment.

I declare under the penalty of perjury that the foregoing is true and correct.

Date: June 27, 2000


Michael Krysiak